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US 5816308 A US 5186426 A US 4949926 A

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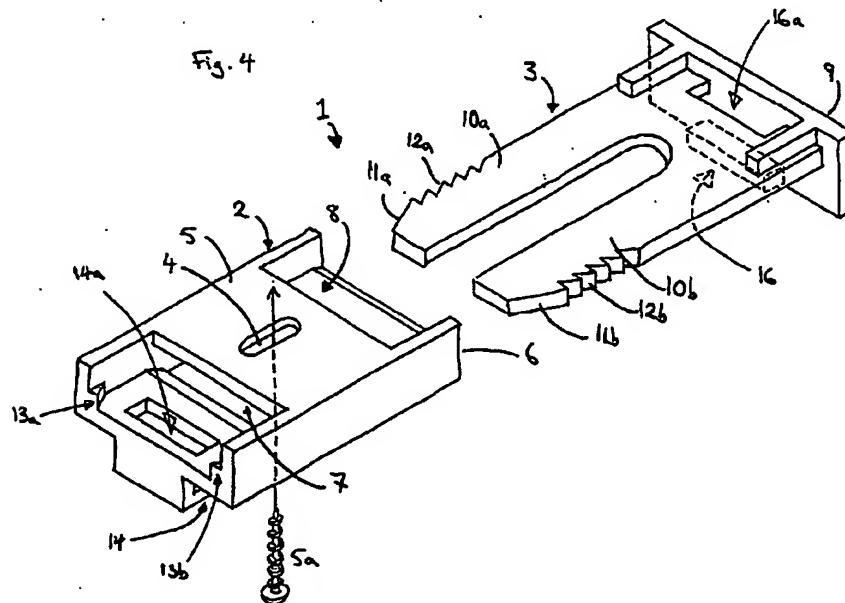
(54) Abstract Title

**Bracket for the mounting of rails, such as head rails for blinds**

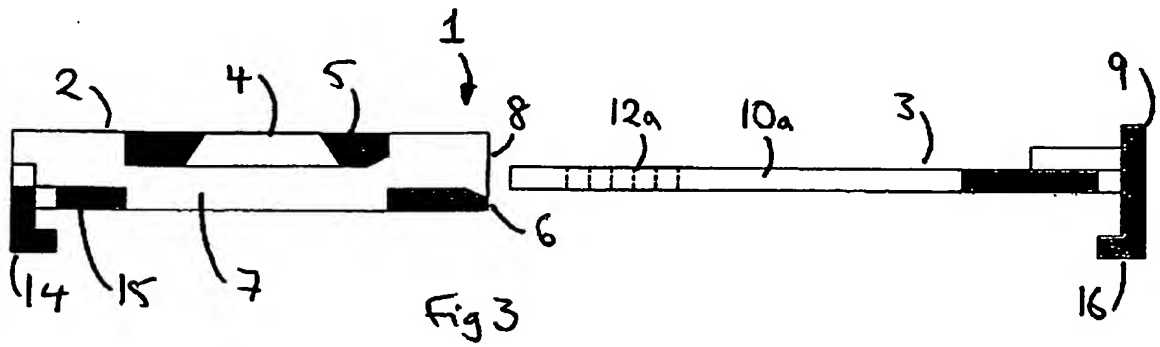
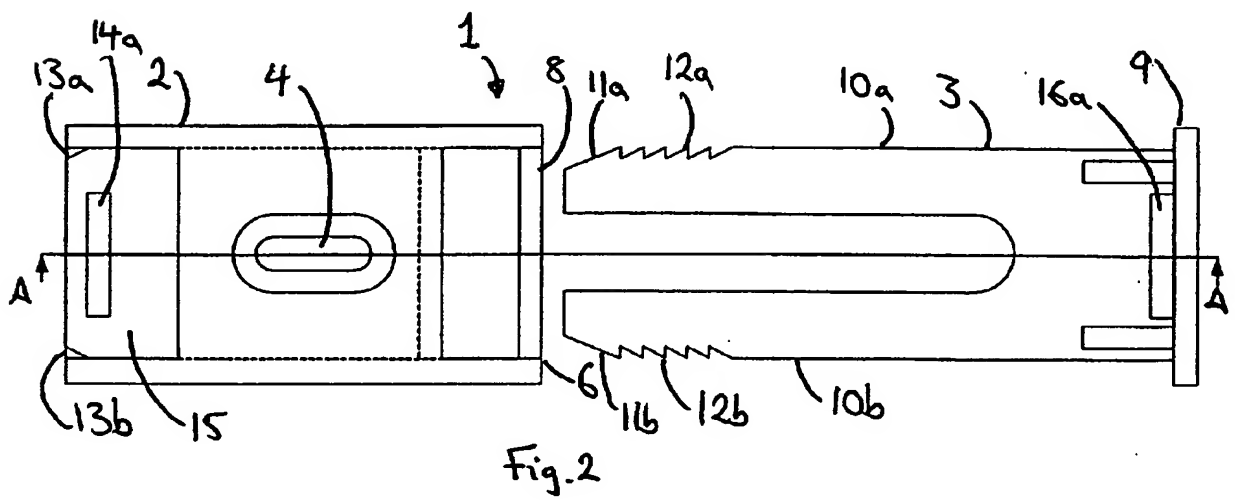
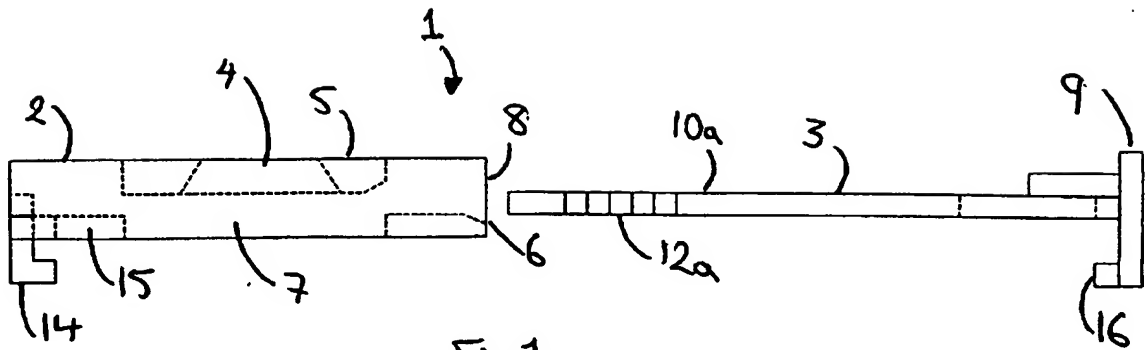
(57) A bracket [1], for the mounting of elongate rails having locating means in two opposed side walls, comprises a first portion [2] and a second portion [3]. The first portion [2] has a channel [8], through which at least one leg section [10a, 10b] of the second portion [3] is inserted, and a retention means [13a, 13b], to engage with the cooperating means [12a, 12b] of the second portion [3]. Both portions have rail engagement means [14, 16] such that, when the second portion [3] is inserted the required distance into the channel [8] of the first portion [2], a suitable rail can be secured between the two engagement means [14, 16].

In one embodiment the second portion [3] has two resiliently deformable legs [10a, 10b], with teeth [12a, 12b], to engage the retention ridges [13a, 13b].

In another embodiment the first and second portions are formed from injection moulded plastics material.



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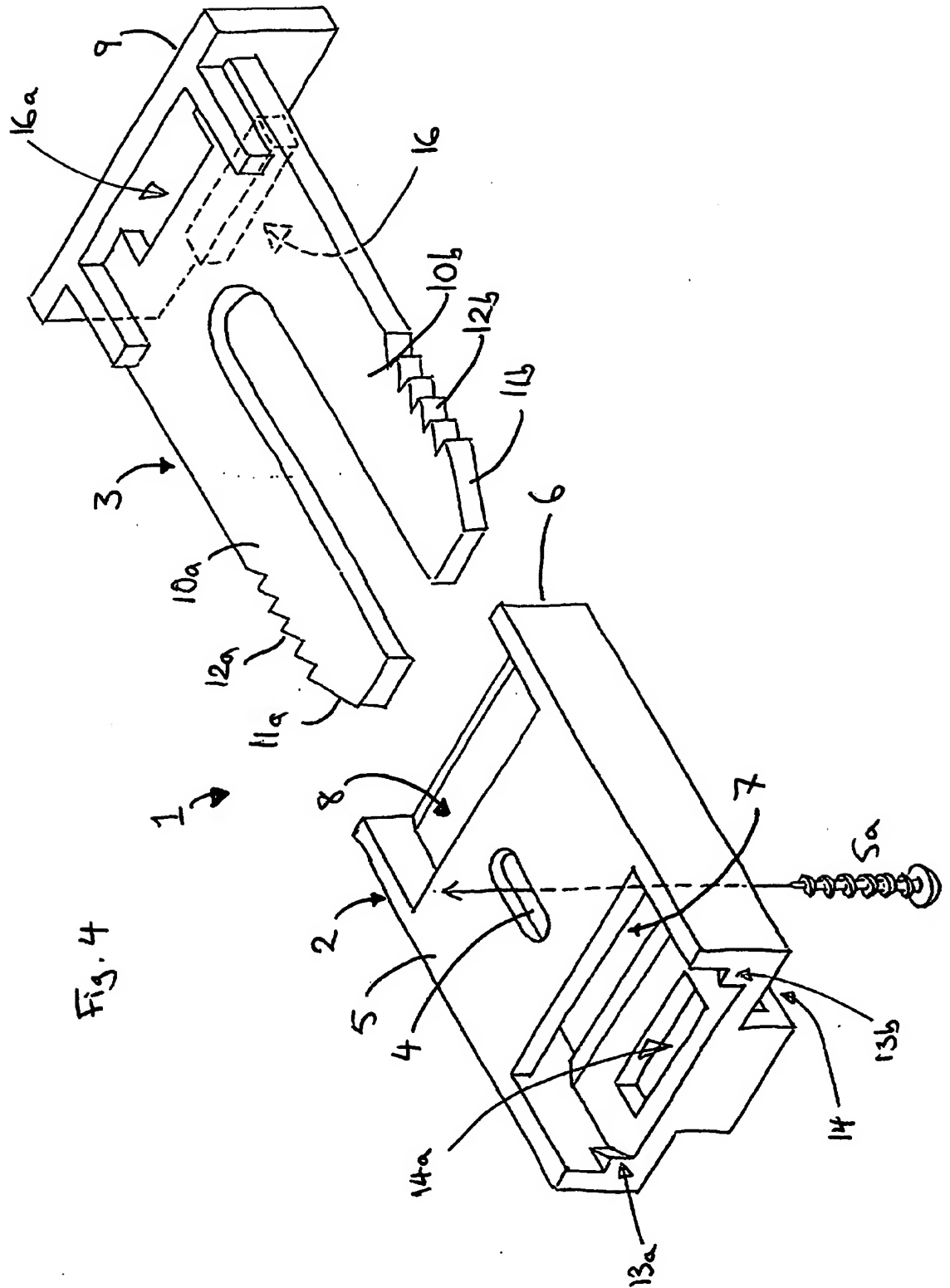
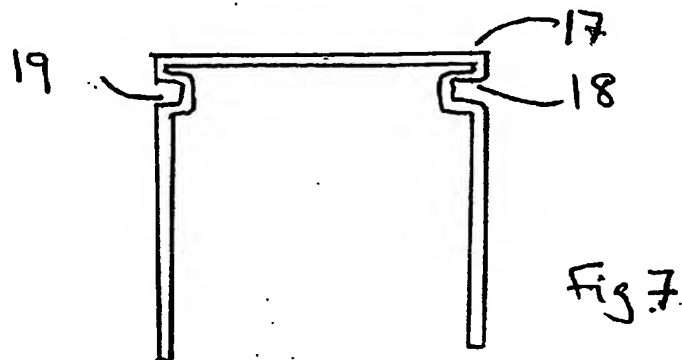
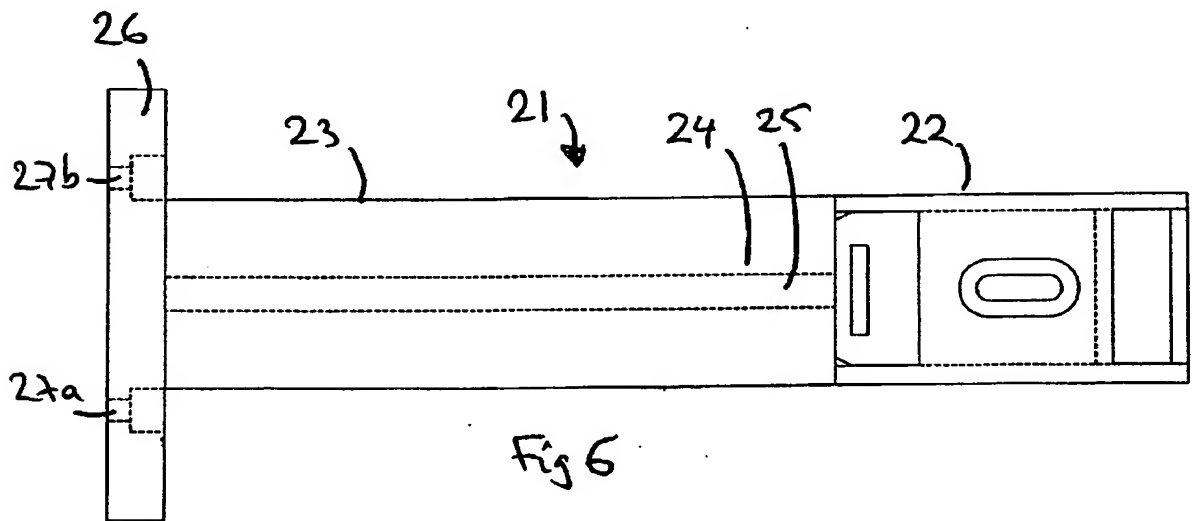
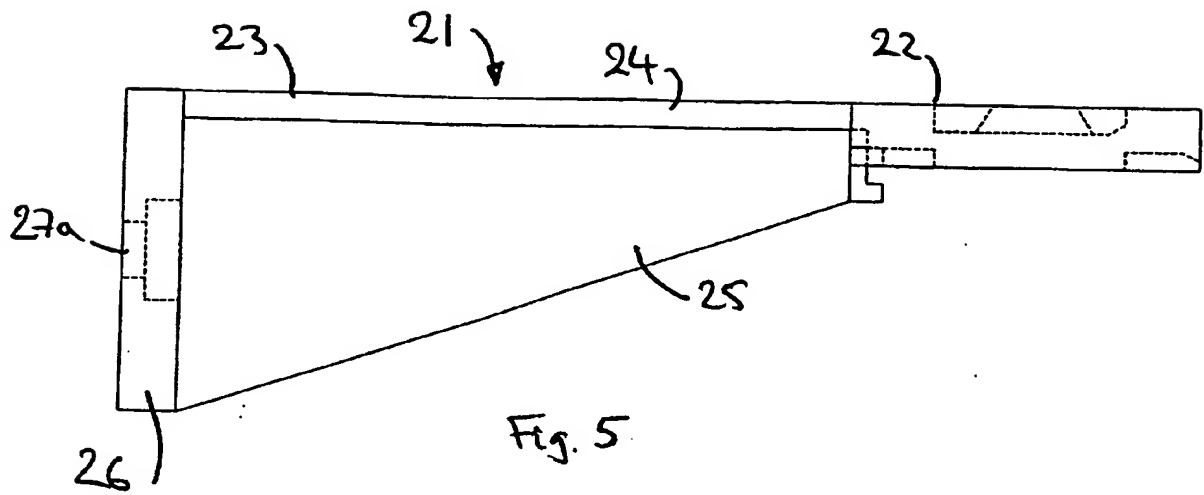


Fig. 4

3/3



**BRACKET**

The invention relates to a bracket, particularly, though not exclusively to a bracket for supporting an elongate rail such as the head rail for a vertical  
5 blind.

Vertical blinds and similar hangings are mounted on a head rail in the form of an inverted channel in which a track is mounted for the components of the blind to move along. The head rail is attached to a  
10 wall or ceiling or to the side or upper face of a window frame, for example, by brackets which are mounted, usually by screw fittings, to the wall or other surface.

The head rail has a flat upper face and two depending side walls. Parallel  
15 indentation runs lengthwise along each side wall at a position just below the upper face of the rail giving the rail a broad T-type cross-section.

The mounting brackets are formed with a lug on an inner face of the bracket adjacent to the wall or mounting surface and extending away from  
20 the wall. The bracket has an outer face and the head rail is positioned between the inner and outer faces of the bracket. One of the indentations in the side walls of the rail is positioned over the lug on the inner face and a screw is inserted through a hole in the outer face and is screwed in against the other of the indentations of the side walls of the rail to hold the  
25 rail firmly within the bracket.

In an alternative form, the bracket is formed with a lug on both its inner and outer faces and the indentations in the side walls of the head rail are snapped into engagement with the lugs to hold the head rail in position.

Problems arise with the mounting of the head rail to the bracket. In the first type of bracket, the screw has to be inserted and screwed in by the person fitting the rail, which can be time-consuming and difficult if the head rail is to be mounted in an awkward position. In the second type of bracket, it is easy for the bracket to become bent such that the head rail is no longer held securely in the bracket.

Additionally, the brackets are usually made of painted metal, which makes them expensive to produce. A further problem is that there is occasionally a build up of paint in the retaining lugs of the bracket, which may mean that the head rail does not engage securely with the bracket.

A further problem with mounting head rails is that the head rails come in a plurality of sizes, depending on the vertical blind or other product mounted therein, and, at present, a different size bracket is required for each different size of head rail.

An object of the invention is to provide an improved bracket for mounting a head rail.

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The invention provides a bracket for mounting an elongate rail having location means in two opposed side walls, wherein the bracket comprises:

a first portion comprising channel means, retention means and a first rail engagement means; and

25 a second portion comprising at least one leg portion, co-operating means to co-operate with the retention means in the first portion and a second rail engagement means,

wherein the at least one leg portion of the second portion is insertable within the channel means in the first portion such that the co-operating

means engage with the retention means at a desired position to hold the elongate rail between the first and second rail engagement means.

Preferably the first portion further comprises means to enable mounting of  
5 the first portion to a surface.

The second portion may be engaged with the first portion at a width to correspond to the width of the head rail. Preferably the bracket is provided pre-assembled with the second portion engaged in the first  
10 portion at a position corresponding to the widest position of the bracket. Preferably the second portion is retained within the first portion so that it cannot be disassembled. Alternatively, a fitter may mount the first portion to a surface and position the second portion part way into the first portion. The head rail is then be positioned between the engagement means of the  
15 first and second portions and the second portion is pushed further into the first portion until the engagement means are in contact with the head rail and the head rail is held firmly in position. The co-operating means engage with the retention means to prevent release of the head rail from the bracket unless the second portion is released from the first  
20 portion. Preferably the second portion further comprises means to disengage the co-operating means from the retention means in the first portion.

Preferably the leg portion of the second portion comprises a pair of  
25 resiliently deformable leg portions.

Preferably disengagement of the second portion from the first portion is conveniently done by moving the resiliently deformable legs of the second portion to disengage the co-operating means from the retention means and

thus allow the second portion to be moved outwards and thus release the head rail from the engagement means.

Preferably access means are provided to enable a user to have access to the resilient leg portions to enable them to be deformed to disengage the co-operating means from the retention means. Advantageously the ends of the legs extend beyond the body of the first portion, even when the second portion of the bracket is positioned at its widest position. A user can then compress the ends of the resilient leg portions towards one another and thus release the co-operating means from the retention means, hence enabling the second portion to be withdrawn from the first portion.

Advantageously the leg portions further comprise finger grip portions.

- 15 Preferably the means to enable mounting of the first portion to a surface comprises a hole in an upper surface of the first portion to enable a screw, for example, to be fitted to mount the first portion to a horizontal surface such as a ceiling or the top of a window frame.
- 20 Preferably the channel means of the first portion and the resilient leg portions of the second portion are sized and shaped such that the leg portions slide within the channel portions and are held therein by the engagement of the co-operating means with the retention means. The leg portions are moved inwardly towards a centre line as they are inserted into the channel portion by resilient deformation of the material, which then causes the leg portions to tend to move back towards their original position, away from the centre line, thus engaging the co-operating means with the retention means. Alternatively or additionally, spring means may be provided between the leg portions to assist in returning the leg portions to their original position. Preferably the co-operating means
- 25
- 30



comprises a plurality of teeth sections and the retention means comprises one or more ridges within the channels with which the teeth sections engage. Alternatively the teeth sections may be formed to be wider than the channel and the retention means may comprise one or more recesses  
5 formed within the channel into which the teeth may move. In a further alternative arrangement, the retention means may comprise ratchet teeth sections and the co-operating means may comprise a ridge, pawl or other means to engage with the ratchet teeth.

10 Preferably the leg portions have an end face comprising a sloping shoulder portion to make insertion of the leg portions into the channels easier.

Preferably the second portion comprises a faceplate attached to or integrally formed with the at least one leg portion for ease of handling by  
15 a fitter and to provide an aesthetically pleasing appearance to the bracket.

Preferably the first rail engagement means comprises a lug integrally formed with a side face of the first portion. Preferably the second rail engagement means comprises a lug integrally formed with the face plate of  
20 the second portion.

Preferably the first and second portions of the bracket are formed from injection moulded plastics material.

25 The first and second portions of the bracket may be moulded separately but to minimise costs of manufacture the first and second portions may be moulded as one piece and then snapped apart before use. Preferably the first and second portions are moulded separately and preassembled before use.

The bracket may be provided in two parts, ready for use by a fitter or may alternatively be provided ready assembled with the second portion partly inserted into the first portion. Advantageously means may be provided to retain the second portion within the first portion so that the bracket  
5 cannot be completely disassembled by a user. This has the advantage that the bracket is ready for use and also that separate parts of the bracket are less likely to be mislaid.

In an alternative embodiment, the bracket is provided with an extended  
10 mounting arm to enable to head rail to be mounted at a distance from the surface to which the bracket is mounted.

The invention further provides a method of mounting a head rail on a surface with a bracket, the bracket comprising a first portion comprising  
15 channel means, retention means and a first rail engagement means and a second portion comprising at least one leg portion, means to co-operate with the retention means in the first portion and a second rail engagement means, the method comprising the steps of:

- mounting the first portion of the bracket to the surface;
- 20 inserting the at least one leg portion of the second portion of the bracket within the channel means of the first portion;
- positioning the head rail between the first rail engagement means on the first portion and the second rail engagement means on the second portion;
- and
- 25 moving the second portion to engage the co-operating means with the retention means at a position in which the head rail is held between the first and second rail engagement means.

The method may alternatively comprise the steps of:  
30 mounting the first portion of the bracket to the surface;

positioning the head rail adjacent the first rail engagement means on the first portion;

inserting the at least one leg portion of the second portion of the bracket within the channel means of the first portion; and

- 5 moving the second portion to engage the co-operating means with the retention means at a position in which the head rail is held between the first and second rail engagement means.

The alternative forms of the method depend on the preferences of the fitter  
10 mounting the head rail to the bracket.

The invention will now be described, by way of example only, by reference to the accompanying drawings, of which:

- 15 Figure 1 shows a side view of a bracket according to the invention;  
Figure 2 shows a plan view of the underside of the bracket shown in Figure 1;

Figure 3 shows cross-sectional view along the line A-A of Figure 2;

Figure 4 shows a perspective view of the bracket of Figures 1 and 2;

- 20 Figure 5 shows a side view of a first portion of an alternative bracket according to the invention;

Figure 6 shows a plan view of the bracket of Figure 5; and

Figure 7 shows a cross-sectional view of a common type of head rail.

- 25 As shown in Figures 1, 2, 3 and 4, a bracket 1 according to the invention comprises a first portion 2 and a second portion 3. The first portion 2 includes a hole 4 in an upper face 5 through which a screw 5a may be inserted to attach the first portion 2 to a surface such as a ceiling or the upper part of a window frame (not shown).

The first portion 2 has a channel 7 extending from an opening 8 in a side face 6 into the interior of the first portion 2.

When the first portion 2 has been mounted on the surface, a user may take  
5 the second portion 3 of the bracket ready for insertion into the first portion 2. The second portion 3 comprises a face plate 9, which may be gripped by the user, and a pair of resiliently deformable leg portions 10a,10b. The leg portions 10a,10b are inserted into the channel 7 in the first portion 2. Sloping faces 11a,11b allow the leg portions 10a,10b to be inserted  
10 easily and smoothly within the channel 7. A plurality of ratchet teeth 12a,12b are formed on each leg portion 10a,10b. These engage with a retention ridge 13a,13b on either side of the channel 7. The ends of the leg portions 10a,10b extend through and protrude beyond the first portion 2. Once the ratchet teeth 12a,12b have been engaged with the retention  
15 means 13a,13b they cannot be accidentally disengaged and can only be disengaged by the action of a user compressing the resilient leg portions 10a,10b towards one another, thus releasing the teeth 12a,12b from the retention means 13a,13b.

20 A first rail engagement means 14, in the form of a protruding lug, is formed on the base 15 of the first portion 2. A corresponding second rail engagement means 16, in the form of a second protruding lug, is formed on the inner face of the face plate 9 of the second portion 3. As the second portion 3 is pushed into the first portion 2 of the bracket 1, the  
25 first and second lugs 14,16 are moved towards one another. When a head rail 17, as shown generally at Figure 7, is positioned between the two parts of the bracket 1, the lugs 14,16 move into engagement with the two indentations 18,19 extending along the length of the head rail 17. Once the second portion 3 has been pushed in as far as it will go, the lugs

14,16 hold the head rail 17 in position in the bracket 1 and the teeth 12a,12b prevent the second portion 3 from being accidentally disengaged.

A plurality of brackets 1 positioned along a surface will hold a head rail  
5 17 securely in position until it is desired to remove the rail 17. When the rail is to be removed, the resiliently deformable leg portions 10a,10b are moved by a user towards one another until the teeth 12a,12b disengage from the retaining means 13a,13b and the second portion 3 can be withdrawn from the first portion 2, allowing the head rail 17 to be  
10 released from the lugs 14,16.

Figure 4 further shows apertures 14a,16a, corresponding to the positions of the lugs 14,16, through the first and second portions 2,3. These apertures 14a,16a are for ease of tooling of the injection moulds for  
15 producing the bracket 1.

The invention also provides an extension bracket 21 as shown in Figures 5 and 6, which is suitable for mounting a head rail 17 on a vertical surface such as a wall or if the bracket is required to be mounted at a distance  
20 from a surface or in an awkward position. The bracket 21 comprises a first portion 22, which is similar to the first portion 2 shown in Figures 1 to 4, attached to an extension arm 23 having an upper face 24, a bracing portion 25 and a mounting plate 26. Mounting holes 27a,27b are formed in the mounting plate 26 through which screws can be positioned to  
25 attached the bracket 21 to a surface. The bracket 21 also comprises a second portion which is the same as the second portion shown in Figures 1 to 3 and is therefore not shown in Figures 5 and 6.

Both parts of the bracket 1 can be moulded from injection moulded plastics, making the bracket 1 of the invention much cheaper to produce than the metal brackets of the prior art.

- 5 A particular advantage of the invention is that the bracket 1 is suitable for mounting a plurality of widths of head rail 17. The bracket 1 is adjustable by the range of insertion distances possible for the second portion 3 within the first portion 2, enabling the bracket 1 to be used for mounting different sizes of head rail 17 as required. A further advantage
- 10 of the bracket of the invention is that it makes installation and mounting of a head rail easier to achieve than with prior art arrangements.

The easy removal of the second portion 3 from the first portion 2 additionally makes the bracket 1 very easy to re-use.

## CLAIMS

1. A bracket for mounting an elongate rail having location means in two opposed side walls, wherein the bracket comprises:
  - 5 a first portion comprising channel means, retention means and a first rail engagement means; and
  - a second portion comprising at least one leg portion, co-operating means to co-operate with the retention means in the first portion and a second rail engagement means,
  - 10 wherein the at least one leg portion of the second portion is insertable within the channel means in the first portion such that the co-operating means engage with the retention means at a desired position to hold the elongate rail between the first and second rail engagement means.
- 15 2. A bracket according to claim 1 wherein the first portion further comprises means to enable mounting of the first portion to a surface.
3. A bracket according to claim 1 or claim 2 wherein the second portion is engaged with the first portion at a width corresponding to the  
20 width of the head rail.
4. A bracket according to claim 3 wherein the head rail is positioned between the engagement means of the first and second portions and the second portion is pushed further into the first portion until the engagement  
25 means are in contact with the head rail and the head rail is held firmly in position.
5. A bracket according to any one of the preceding claims wherein the at least one leg portion of the second portion comprises a pair of  
30 resiliently deformable leg portions.

6. A bracket according to any one of the preceding claims wherein the second portion further comprises means to disengage the co-operating means from the retention means in the first portion.

5

7. A bracket according to claim 6 wherein the co-operating means engage with the retention means to prevent release of the head rail from the bracket and the legs of the second portion are movable to disengage the co-operating means from the retention means and allow the second  
10 portion to be moved outwards to release the head rail from the engagement means.

8. A bracket according to claim 6 or claim 7 wherein access means are provided to enable a user to have access to the resilient leg portions to  
15 deform them to disengage the co-operating means from the retention means.

9. A bracket according to claim 8 wherein the ends of the leg portions extend beyond the body of the first portion.

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10. A bracket according to any one of the preceding claims wherein the leg portions further comprise finger grip portions.

11. A bracket according to any one of the preceding claims wherein the  
25 means to enable mounting of the first portion to a surface comprises a hole in an upper surface of the first portion.

12. A bracket according to any one of the preceding claims wherein the  
30 channel means of the first portion and the resilient leg portions of the second portion are sized and shaped such that the leg portions slide within



the channel portions and are held within there by the engagement of the co-operating means with the retention means.

13. A bracket according to any one of the preceding claims wherein the  
5 co-operating means comprises a plurality of teeth sections and the retention means comprises one or more ridges within the channels with which the teeth sections engage.

14. A bracket according to any one of the preceding claims wherein the  
10 leg portions have an end face comprising a sloping shoulder portion.

15. A bracket according to any one of the preceding claims wherein the second portion comprises a faceplate attached to or integrally formed with the resilient leg means.

15

16. A bracket according to claim 15 wherein the second rail engagement means comprises a lug integrally formed with the faceplate of the second portion.

20 17. A bracket according to any one of the preceding claims wherein the first rail engagement means comprises a lug integrally formed with a side face of the first portion.

18. A bracket according to any one of the preceding claims wherein the  
25 first and second portions of the bracket are formed from injection moulded plastics material.

19. A bracket according to claim 18 wherein the first and second portions of the bracket are moulded separately.

30

20. A bracket according to claim 18 wherein the first and second portions are moulded as one piece and then snapped apart before use.

21. A bracket according to any one of the preceding claims further comprising means to retain the second portion within the first portion so  
5 that the bracket cannot be completely disassembled by a user.

22. A bracket according to any one of the preceding claims further comprising an extended mounting arm.

10

23. A method of mounting a head rail on a surface with a bracket, the bracket comprising a first portion comprising channel means, retention means and a first rail engagement means and a second portion comprising at least one leg portion, means to co-operate with the retention means in  
15 the first portion and a second rail engagement means, the method comprising the steps of:

mounting the first portion of the bracket to the surface;

inserting the at least one leg portion of the second portion of the bracket within the channel means of the first portion;

20 positioning the head rail between the first rail engagement means on the first portion and the second rail engagement means on the second portion; moving the second portion to engage the co-operating means with the retention means at a position in which the head rail is held between the first and second rail engagement means.

25

24. A method of mounting a head rail on a surface with a bracket, the bracket comprising a first portion comprising channel means, retention means and a first rail engagement means and a second portion comprising at least one leg portion, means to co-operate with the retention means in

the first portion and a second rail engagement means, the method comprising the steps of:

mounting the first portion of the bracket to the surface;

positioning the head rail adjacent the first rail engagement means on the  
5 first portion;

inserting the at least one leg portion of the second portion of the bracket within the channel means of the first portion;

moving the second portion to engage the co-operating means with the retention means at a position in which the head rail is held between the  
10 first and second rail engagement means.

25. A bracket as hereinbefore described with reference to Figures 1 to 4 of the accompanying drawings.

15 26. A bracket as hereinbefore described with reference to Figures 5 and 6 of the accompanying drawings.



Application No: GB 9928157.8  
Claims searched: 1-26

Examiner: Philip Ord  
Date of search: 4 April 2000

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): EIJ: JEX

Int Cl (Ed.7): E06B: 9/323

Other: Online: WPI, EPODOC, JAPIO

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 1014927 A ( Levolor Lorentzen Inc.) See esp. fig. 7 and 9	1,2,6,11, 15,16,21,22
X	EP 0633384 A2 ( Kabushiki ) See esp. figs. 28-30	1-7,11,12, 15-17,21-24
X	JP 6221069 A ( Nichibei Co. Ltd. ) See abstract	1-3,5, 11-17,21-24
X	US 5816308 ( De Hoyos )	1-3,5,11, 12,14-20
X	US 5186426 ( Kouichi Wada )	1-3,5,6, 8,11,12, 15-17,21-24
X	US 4949926 ( Tai-Ping Liu ) See esp. figs. 1-4	1-3,11, 14-17,21,22

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.